

THE SINCLAIR/TIMEX USERS MAGAZINE

\$1.50

Volume III

JANUARY 1985

Number 1



Sinclair at CES

Sinclair Research Limited was present at the **Winter Consumer Electronics Show** just held in Las Vegas. The above photo shows the products they had on display. Brochures available at the booth had the Nashua, NH address printed on them—the obvious implication being that these products would be available in the U.S. Pictured in the photo are Sinclair's 2" flat-screen TV, wrist watch sized FM radio with built-in speaker, the QL small business computer, and the Spectrum Plus color computer. The computers were hooked up and running a variety of programs and were actual models, not prototypes. Since one purpose of having a show like CES is to gather some idea of public interest in a company's products, it would be helpful if as many as possible wrote direct to Sinclair and asked them to bring these products to the American market. Their address is: Sinclair Research Ltd., 1 Sinclair Plaza, Nashua, NH 03061.

SUM Begins a New Year

This year we plan to serve the Sinclair-Timex community to the best of our ability covering hardware, programs, related news, reviews and more! We welcome comments about our publication and encourage you to write and tell us what you think.

We start this month with a 2068 parallel printer interface for you to build and a (early) beginner's programming guide plus new software releases for the 2068!

Here are a few news items to start the new year:

From the Long Island Sinclair Timex Group (LIST) comes the report that they have successfully interfaced the Sinclair Microdrives to the 2068 using the EMU-1 Spectrum emulator and Spectrum buss as described last month and in December/January issue of LISTing.

Speaking with Nazir Pashtoon of LIST, we learned that the system will run only using the EMU-1 and not with 'ROM switches'. He and others have had no problems in making the drives run, although, Doug Dewey of Triangle Sinclair users group (North Carolina) says he has tried several drives on his two 2068's and have not gotten a thing to work. Their maybe a problem with system timing here?

We finally received our Rotronics Waferdrives but so far have not been able to get them to initialize in either 2068 or Spectrum mode. Our next step is to try it with an EMU-1 attached (and Spectrum to make sure the thing even works).

Sinclair had a booth at the Las Vegas Consumer Electronics Show and there on display was the new Sinclair Spectrum+ computer. The Spectrum+ is a Spectrum with the QL keyboard which gives seventeen extra dedicated keys. Both Don Barnard of TS Services and Doug Dewey have spoken with Sinclair's US office and were told that Sinclair is considering marketing the Spectrum+ in this country.

Note: This and other portions of this magazine are printed on Joe's new Panasonic KX-P1091 printer.

Back Issues of SUM Available

A complete set of August through December issues are all available for \$6.25. Single back-issues are available for \$1.50 each. Each include:

AUGUST--Spectremulator: a hardware project for switching between the Spectrum and the 2068 ROM's; TASWORD II review; pokes for TASWORD II using the Aerco interface; Software review of GOLD!

SEPTEMBER--Completion of Spectremulator article; 2068 schematic; TMK color monitor/TV review; ZX/TS repair guide, part one; Textwriter 2000+ review; expanding UDG's; HORACE GOES SKIING and HORACE AND THE SPIDERS review.

OCTOBER--ZX/TS repair guide part two; BUGABOO review; ZX/TS schematic; Modem tips for using a full size printer; VIEWord review.

NOVEMBER--TASPRINT review; ZX/TS repair guide part III; 16K RAM pack schematic; 2068 with Spectrum ROM software update; M-SCRIPT review; The Woodward Report; Pokes for Spectrum TASWORD II using the Aerco interface.

DECEMBER--Spectrum buss for the 2068 project; OmniCalc 2 review; Complete TEXTWRITER series review; WMJ Data Systems overview; Ramblings.

Vender Reports

Budget Robotics & Computing of Tucson, AZ has purchased the rights to manufacture and sell the Computer Continuum Buffered Buss Development Board. This expansion buffered buss board is available as a bare board with complete documentation and parts list. This board is compatible with the ZX80, ZX81, TS1000, and TS1500 computers, all for \$40 ea. Also available is the

S U M

SINCLAIR/TIMEX USERS MAGAZINE

c/o 3224 NW 30th Avenue
Gainesville, Florida 32605

EDITOR Joe Williamson

PUBLISHER Richard Cravy

CONTRIBUTING EDITORS

Al Mollitor Bill Woodward John Monkus

SUBSCRIPTION RATES

Regular Subscription\$12.00/year

Trial Subscription \$6.00/6 months

Published once a month

ADVERTISING RATES

Full Page\$50

Half Page\$30

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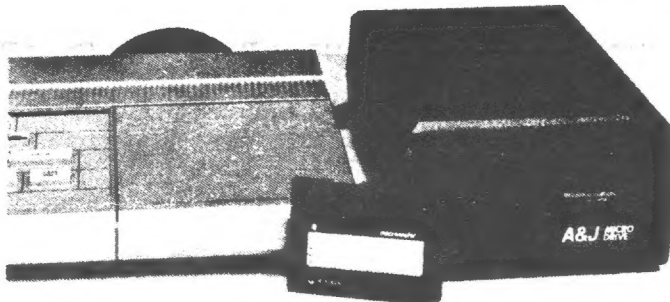
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RX81, originally sold by Zodex. This I/O board works on both the ZX/TS and the 2068 computers; \$10 ea or two for \$18. Budget Robotics & Computing, Box 18616, Tucson, AZ 85731.

Knighted Computers has just announced that they are selling the Quicksilva software for the 2068 (specific). They are: Snowman, Traxx, Velnor's Lair, Lazer Zone, Aqua Plane, Trader, Grid Runner, Ghost Town, Robber, Starfire, Lost, The Island, and Quetzalcoatl. Soon to be released will be the Zip Compiler. Prices will run between \$17.95 and \$19.95 for most programs. Ray Payne said that the Microdrives are selling like crazy and has had no problems with converting software over to the microdrives, and its fast! Knighted Computers, 707 Highland Str. Fulton, NY 13069

T-S Horizons

Each issue brings you 32 pages of usable information, program listings, product reviews, programming articles, hardware projects, and applications for your computer. T-S HORIZONS features nationally known authors like Paul Hunter, Gordon Young, and others. The price is ONLY \$15.00 for a full year (12 issues). AND for a limited time only, new subscribers will receive our special telecommunications issue (#7, see below) *FREE* with their subscription.



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TS 2068 Printer Interface

This month I will discuss building a printer interface for the 2068. With all the software out on the market for the 2068, its hard to figure out what's the best route to take in deciding which printer interface to buy for the best variety of good programs. The interface described here will work with almost all of them - either Spectrum or 2068 type.

Once again, this is a fairly advanced project and should be attempted by only those who have had lots of experience soldering and working with digital circuits.

The two most popular interfaces are the Aerco printer interface from here in the states and the Tasman interface from England. Tasman has two types of interfaces out on the market named type 'A' and type 'B'. The type 'B' is the one that is sold now, but there is still alot of the type 'A' software out there.

Each type is decoded to a specific I/O port (0-255) of the computer for both sending data to the printer and receiving the status of the printer (whether its busy or not). The different ports are as follows:

	port	
type:	IN	OUT
Aerco	127	127
Tasman 'A'	63	123
Tasman 'B'	191	123

To design a printer interface that will emulate any of these other available interfaces, you need to be able to decode all of these I/O ports.

Address lines A0-A7 are used to select any one of the 256 possible I/O ports. Eight address lines, 2⁸=256. To select port 127, all address lines would be logic 1 with the exception of A7 being logic 0.



Schematic for 2068 Printer Interface

The address lines are weighted as follows:

128	64	32	16	8	4	2	1
A7	A6	A5	A4	A3	A2	A1	A0

$$64 + 32 + 16 + 8 + 4 + 2 + 1 = 127$$

Hence, port 127 is selected when A0-A6 are logic 1 or true. For the rest of the ports in the table above, you can see that the only address lines that change are A2, A6, and A7 while A0, A1, A3, A4, and A5 all don't change. With just A2, A6, and A7 changing, the following table can be derived:

A0-A1, A3-A5 are logic 1

	logic			
	A2	A6	A7	port
0	0	0	0	59
1	0	0	1	187
2	0	1	0	123 <
3	0	1	1	251
4	1	0	0	63 <
5	1	0	1	191 <
6	1	1	0	127 <
7	1	1	1	255

Try adding up the weight of each address and see if you come up with the ports listed above.

Hardware wise, the above table can be implemented by using a 74LS138 - a 3 to 8 line decoder. This chip also has several enables on it which makes it handy for taking care of other control lines.

The other addresses are 'NANDED' together using a 74LS20 4-input NAND gate and tied to one of the enables of the decoder along with IORQ and A5. The outputs are 'NORed' using a 7411 3-input NAND gate and then are 'ANDED' with their respective WR and RD lines using a 74LS02 NOR gate. These two outputs go into a S-R flip-flop using left over gates which strobes the printer.

The chip count is only six in this project and will allow you to drive a parallel printer using any

software that contains the printer driver built in such as TASWORD II, MSCRIPT, MASTERFILE, TEXTWRITER+ 64 and others for either the Aerco or Tasman interfaces.

Next month I will talk about the signals the printer requires and give a circuit board layout.

Joe Williamson

Beginner's Basic Programming

This is a beginner's program that will display some of the useful capabilities of the Timex-Sinclair computers and will run on the ZX 80 (8K), ZX 81, TS 1000 (all with 16K RAM attached), TS 1500, and the TS 2068. For convenience, lets call these the 1000 and the 2068. The convention is to number in increments of 10. Do not be afraid to experiment! alot can be learned about the art of programming from experimenting.

SAVEing is the most important consideration for a beginning programmer. Read the User Manual chapter on SAVEing. Type 9991 SAVE "smily face" ENTER. Do you know why the 'e' was left out of "smily face"? Insert the 'e' and type GOTO 9991 ENTER. See why? DELETE the 'e'. Type GOTO 9991 ENTER. -Note, I will type all key-words in CAPITALS so they can be entered with one keystroke from the keyboard.

To make the program auto-run upon loading, type 9995 GOTO 1 on the 1000. On the 2068, type 9991 SAVE "smily face" LINE 1 ENTER (LINE 1 auto-runs on the 2068). For the 2068, type 9992 INPUT "Verify? y/n ";n\$ ENTER, 9993 IF n\$="n" THEN STOP ENTER, 9994 VERIFY "" ENTER. After SAVEing you will be asked: Verify? y/n. Typing 'n' will stop the program. Any other key (except BREAK or spacebar) will verify your program. SAVE the program to tape for future use.

Lets develop a simple, straight forward arithmetic program, such as $x + y = z$. X is the augend, y is the addend and z is the sum. x and y enter the problem into the computer. Z enters the answer of the student.

LOAD your SAVE routine from tape and type 3310 INPUT x ENTER, 3320 INPUT y ENTER, GOTO 1 ENTER. Answer the INPUTs. Surprised? Hold down both the CAPS SHIFT and BREAK keys until the program BREAKs. A barrier is needed between the program and the save routine. Type 9990 STOP ENTER, GOTO 1 ENTER.

To present the problem to the student, type 3350 PRINT AT 6,0 ;x; " + ";y;" = ?" Enter. 3360 INPUT z ENTER. Type 3380 PRINT AT 6,0;x;" + ";y;" = ";z ENTER. -Note: the computer does just what you tell it to so the answer may be wrong! Run the program and input 7 for x, 8 for y, and 13 for z. When 7 + 8 = 13 is presented on the screen, type PRINT x+y ENTER. The correct answer will be printed on the next line. To make the program repeat, type 3490 goto 3300 ENTER.

We now have a usable program. If you wish a complete math program, EDIT each line and make the following changes in lines 3310-3490. Add 200 to each line number and change the '+' to a '-'. Then take this set of program lines, add 200 to each line number and change the '-' to a '*'. Then take this set and add 200 to

each line number and change the '*' to a '/' so that you have a program that looks like the one below. SAVE the program by typing in GOTO 9991 ENTER. Study ways to make this program more user friendly.

Next month we will add a menu, make the insertion of x and y automatic, number the problems, and continue general improvements making the program more useful. In the meantime, EXPERIMENT!

Bill Woodward

```
3310 INPUT x
3320 INPUT y
3350 PRINT AT 6,0;x;" + ";y;"
= ?"
3360 INPUT z
```

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*** SUM-WARE ***

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```

3380 PRINT AT 6,0;x;" + ";y;"
= "?"
3490 GO TO 3300
3510 INPUT x
3520 INPUT y
3550 PRINT AT 6,0;x;" - ";y;"
= "?"
3560 INPUT z
3580 PRINT AT 6,0;x;" - ";y;"
= "?"
3690 GO TO 3500
3710 INPUT x
3720 INPUT y
3750 PRINT AT 6,0;x;" * ";y;"
= "?"
3760 INPUT z
3780 PRINT AT 6,0;x;" * ";y;"
= "?"
3890 GO TO 3700
3910 INPUT x
3920 INPUT y
3950 PRINT AT 6,0;x;" / ";y;"
= "?"
3960 INPUT z
3980 PRINT AT 6,0;x;" / ";y;"
= "?"
4090 GO TO 3900
9990 STOP
9991 SAVE "smiley face" LINE 1
9992 INPUT "verify? y/n ";n$
9993 IF n$="n" THEN STOP
9994 VERIFY ""

```

An RGB Monitor for the TS 2068

I purchased a Model No. 4084 TV/monitor from Sears (\$364.00 including tax) together with RGB Cable Model 6539 (\$18.00). I had to modify my computer using an RGB Conversion kit #220-453 from Arthur Brown Co., 1702 Oak Knoll Drive, Alexandria MN 56308 (\$19.95). This kit requires opening the computer and doing some soldering inside. I connected the cable as follows:

Conversion Cable	RGB Sears Cable
------------------	-----------------

Brown	Orange
Red	Red
Orange	Brown
Green & Yellow	Bare Wire
White	Green
Black	Blue
*+5 volts	Yellow

*Run a separate wire (not included) connected to the +5 volts location shown in the instructions for the RGB Conversion Kit.

Try out the new system by entering BORDER 6. If the edges of the display have wiggles or the screen goes blank, open the computer and adjust the Horizontal by turning the "VRI" located in the bottom left side and/or the "CS" which is at the middle upper right part of the board.

I now have fantastic sharpness and color. I noticed Sears had this monitor on sale recently for \$319.00. (Editor's Note: *Consumer Report's* January 1985 issue rated this monitor's 80 column display in RGB mode as good as those monitors costing twice as much!)

-- Phil McConaghey

SM-II for the TS 1000 & 1500

There is a Smart Terminal II program for the Timex 1000 and 1500 computers, but it hasn't been put on the market. I contacted the Micro-Systems Software Company and they told me that they do have a Terminal II program for the 1000. I heard that there a lot of people who would like this program. I need to know your interest in the idea

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of getting this program on the market. There is a company that will market this program, but they need a demand for the program in order to market it.

We Timex 1000 users have to stick together and see if we can get them to market the program so we can upload/download like the 2068 computer can. The 1000 may be small, but we were first on the market and I think it's our turn to stand up and let the people know who we are.

If you would like to show your support for getting the Terminal II program on the market, please let me know. Let your user's groups in on it, tell everyone you know, print it in your group periodicals. We need to stick together. Please show your support. Send letters to: Ed Burton, Timex User's Group, 1624 Loughborough Dr., Merced, CA 95340

More on Spectrum Roms

As far as I know I was one of the first 2068 users to put a Spectrum ROM in my machine. It is mounted using Joe Williamson's board from the August SUM and allows me to switch between 2068 and Spectrum compatibility with a toggle switch on the back of my machine. I would recommend to every owner that he/she do the same! All the software that we envisioned when we originally purchased our 2068s is available NOW if you have the Spectrum ROM.

Before me on my desk is the November 1984 issue of *Sinclair User* from England. It contains over 200 pages and is about 70% advertising of games, business software, books, and hardware—all for the Spectrum. (Lest 1000/1500 users feel left out there are ads for them as well, including 3 new high resolution games for the 1000 that would boggle your mind.) In the back of this issue is a list of software reviewed by this magazine. There are about 150 listed for the ZX81 (our 1000/1500) and OVER 600 listed

for the 16K and 48K Spectrums—and this is only what the magazine was aware of! Numerous ads in the magazine itself listed other programs not on the magazine list.

My experience so far has been excellent in dealing with the English companies. All have taken either my check in American dollars or my Mastercard. (Right now figure about \$1.20 to \$1.25 per English pound.) Always add ample extra for shipping, especially if you want it air mail. Prices are excellent by American market standards. Top rated arcade style games run 6 to 10 pounds retail—about \$7.50 to \$12.00. What a difference. Further, everything runs on my computer! The only exceptions, of sorts, are programs wishing to access my printer using the Aerco (they don't) or Tasman interfaces (sometimes requires a software patch provided by Tasman on their cassette tape).

In addition to the software, disk drives are marketed by several companies. I have tried none of these since prices are upwards of \$300 but I suspect modification would be possible using the same device Joe Williamson describes elsewhere in this issue for the Rotronics Wafadrive.

In summary, if you are willing to buy the ROM chip and order your software from England, you can have almost anything you ever dreamed of for your 2068.

-- Richard Cravy

CLASSIFIED ADS

FOR SALE: TIMEX COMPUTER CASSETTE RECORDER—brand new, still in box. \$45. Call Joe Williamson at 904/462-1086 6-9 p.m. EST.

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